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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/670,722	09/25/2003	Akira Kume	S004-5129	6772

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EXAMINER	
MULLER, BRYAN R	

ART UNIT	PAPER NUMBER
3723	

DATE MAILED: 11/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/670,722	KUME ET AL.	
	Examiner	Art Unit	
	Bryan R Muller	3723	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 September 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) *16* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: Page 10 of the specification relates to number "12" as a first rotation-transmission board, number "14" as a rotation-transmission board which should be a *second* rotation-transmission board and refers to number "16" as a second rotation-transmission board which should be a *third* rotation-transmission board.

Appropriate correction is required.

Claim Objections

2. Claim 16 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 15. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant

regards as the invention. Claim 1 includes components of a polishing apparatus but the claim appears to be directed towards only the jig plate. If the claim is re-written as a combination of the jig plate and polishing apparatus (i.e.: "A polishing system consisting of ...") the claim will be acceptable.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-6, 10-16 and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada (2001/0055459 A1) in view of Ohno et al. (5,738,576).

7. In reference to claim 1, Yamada discloses a jig plate (1) opposed to a rotating polishing plate (13) of an end face polishing machine for polishing the end face of a ferrule cylindrical member (8) that holds the tip of an optical fiber (9), for polishing the face of the ferrule cylindrical member into a convex curve (paragraph [0004], lines 19-21), with the ferrule cylindrical member brought into contact with the polishing plate at a predetermined angle (fig. 6), comprising a jig plate body (1) having a part for mounting to the end face polishing machine and a holding part (2) provided to the jig plate body for detachably holding an optical connector plug, the holding part holding the optical connector plug while correcting the target inclining direction (fig. 6) of the polished

convex curve of the ferrule cylindrical member. Yamada does not disclose that the polishing plate is also fluctuating but does state that the jig plate may be moved upward and downward (thereby fluctuating) in parallel with the grinding board (abstract, lines 3-5), making it obvious that the same results would be met if the polishing plate were to be fluctuating. Yamada also fails to disclose that the ferrule cylindrical member shall turn to a direction opposite to the rotating direction of the polishing plate with respect to a plane including the center of the jig plate body and the axis of the optical fiber so that the inclining direction of the polished convex curve of the ferrule cylindrical member held by the optical connector plug coincides with the reference direction of the optical connector plug. Ohno teaches that it is advantageous to provide a convex tip on optical fibers in order to minimize optical losses in ascribable to the gap between the ends of fibers (col. 1, lines 19-27) and a method of producing a convex surface may include a rotary stage with an elastic sheet with an abrasive grain applied to the sheet and the act of rotating a ferrule containing an optical fiber having a conical end about its axis in the opposite direction of the rotation of the rotary stage (figs. 2A and 2B) while the end of the ferrule and fiber are pressed against the rotating sheet. This method produces a convex curve that is inclined with respect to a plane perpendicular to the axis of the ferrule and optical fiber (figs. 1, 2A, 2B, 5A and 5B of Ohno). Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to provide the jig plate of Yamada with the ability to rotate a ferrule containing an optical fiber which is angled to correct the target inclining direction about its axis in the opposite direction of the rotation of the rotating polishing plate, while contacting the rotating

polishing plate in order to create a smooth convex surface with the convex curve inclined with respect to a plane perpendicular to the axis of the ferrule and optical fiber in order to minimize the optical losses ascribable to the gap between the ends of the optical fibers therefore making the fibers more efficient in transmission of data.

8. In reference to claim 2 and 3, the jig plate that may obviously be created combining the teachings of Yamada and Ohno as discussed above may produce a reference direction of the optical connector plug that is determined either by the outer periphery of the optical connector plug as the reference or that is determined depending on the direction of the location key provided to the optical connector plug (paragraph 13, line 5-6).

9. In reference to claims 4-6, the jig plate that may obviously be created combining the teachings of Yamada and Ohno as discussed above has a holding part of the jig plate body (2 of Yamada) that detachably holds the optical connector plug (paragraph [0044], lines 10-12).

10. In reference to claims 10-16, the jig plate that may obviously be created by combining the teachings of Yamada and Ohno as discussed above may hold the connector plug such that the ferrule cylindrical member is brought into contact with a polishing surface of the polishing plate relatively at an angle so that the angle formed by the axial direction and a polishing surface closer to the rotation center than the ferrule cylindrical member becomes an obtuse angle (top side of fig. 6, Yamada).

11. In reference to claims 19 and 20, although the obvious combination of Yamada and Ohno does not directly disclose the method steps provided in these claims, it would

have been obvious to one of ordinary skill in the art at the time the invention was made to use the obvious combination of Yamada and Ohno in this manner as it's normal operating procedure.

12. Claims 7-9 rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada in view of Ohno as applied to claims 4-6 respectively above, and further in view of Takahashi (6,257,971 B1).

13. The obvious combination of Yamada and Ohno provides the jig plate as discussed supra but does not disclose that the holding member can be replaced with a holding member of a different correction angle. Takahashi discloses a jig plate for grinding or polishing optical fibers that may have a plurality of types of supporting structures for fixing and supporting a plurality of types of optical fiber end devices with optical fibers connected thereto, the plurality of end devices may be connectors whose end surfaces are to be ground at different angles (abstract, lines 4-15). Takahashi also discloses that the grinding holder plate is one of the most critical and expensive components of the grinding apparatus, thus creating the need for a single grinding holder plate that can be adapted to a variety of types of optical fibers (col. 2, lines 26-43) and that the supporting structures are detachably secured to the holder plate (col. 5, lines 2-4). Therefore it would be obvious to one of ordinary skill in the art at the time the invention was made to provide the Yamada/Ohno combination with the ability to replace holding members with other holding members with different correction angles in order to make the jig plate usable for several different optical connector plugs in order to save

money on production of several different jig plates and make it easier to polish optic fibers at different angles when necessary.

14. Claims 17 and 18 rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada in view of Ohno and Takahashi (6,257,971 B1).

15. The combination of Yamada, Ohno and Takahashi discloses a jig plate as applied to claims 7 and 8 respectively and further disclose that the jig plate may hold the connector plug such that the ferrule cylindrical member is brought into contact with a polishing surface of the polishing plate relatively at an angle so that the angle formed by the axial direction and a polishing surface closer to the rotation center than the ferrule cylindrical member becomes an obtuse angle (top side of fig. 6, Yamada).

Conclusion

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Takahashi ('475, '784, '846 and '445) all disclose apparatus' for polishing or grinding end faces of ferrules together with optical fibers.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bryan R Muller whose telephone number is (703)305-0487. The examiner can normally be reached on M-F.

18. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph J Hail III can be reached on (703)308-2687. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

19. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BRM BRM
11/8/2004

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